5

Abstract

       A digital filtering system for filtering sample data includes a delay
network for delaying input sample data to provide multiple delayed sample data
outputs. The filtering system also includes a filter network represented by a
10   decomposed coefficient weighting matrix for processing the delayed sample data
outputs. A processor produces a filtered output by computing a weighted product
summation of the delayed sample data outputs and the coefficient weighting matrix.
The decomposed coefficient weighting matrix is derived by factoring a first coefficient
weighting matrix with a common row factor and/or sparse matrix or by factoring
15   based on matrix row or column symmetry.